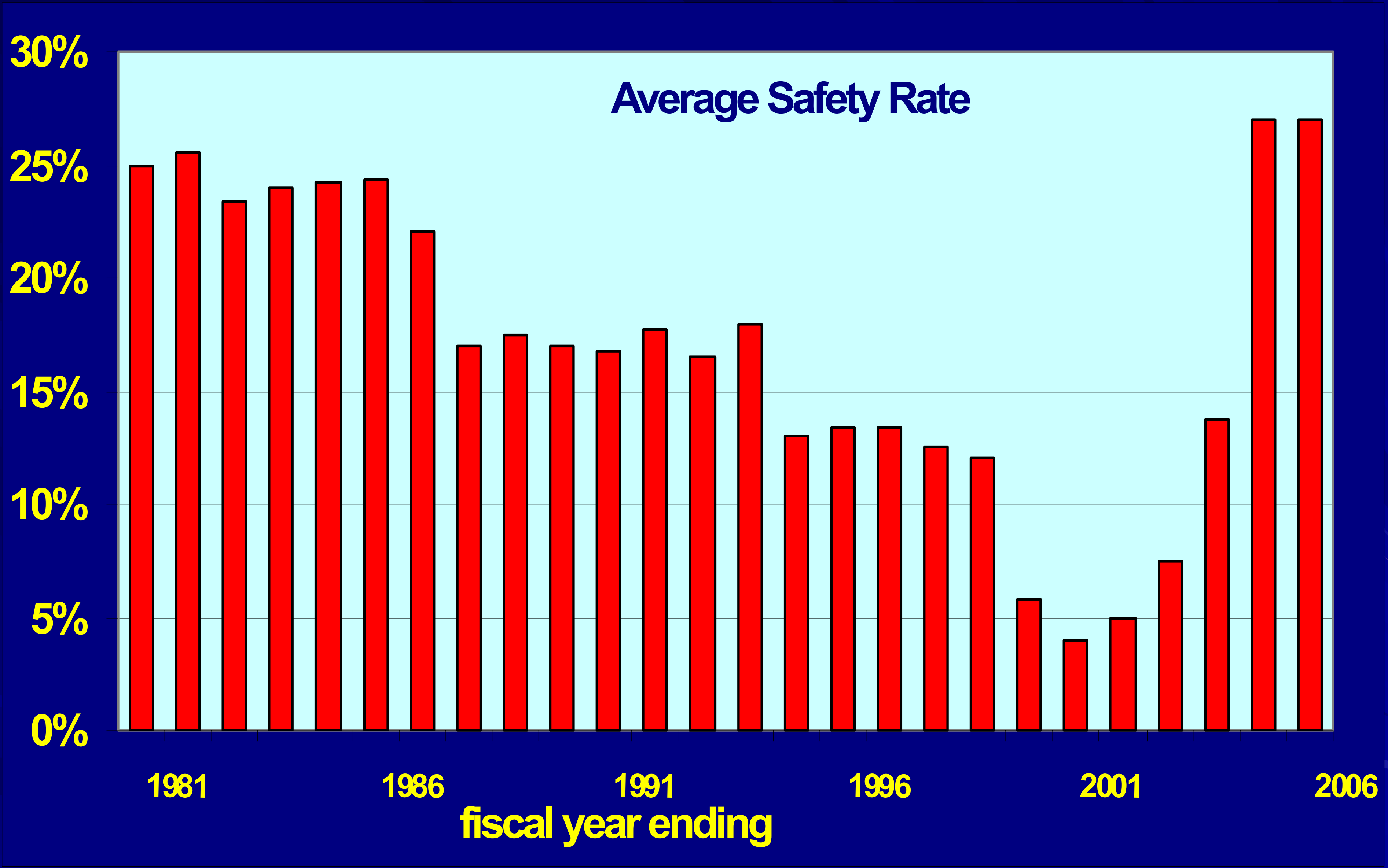
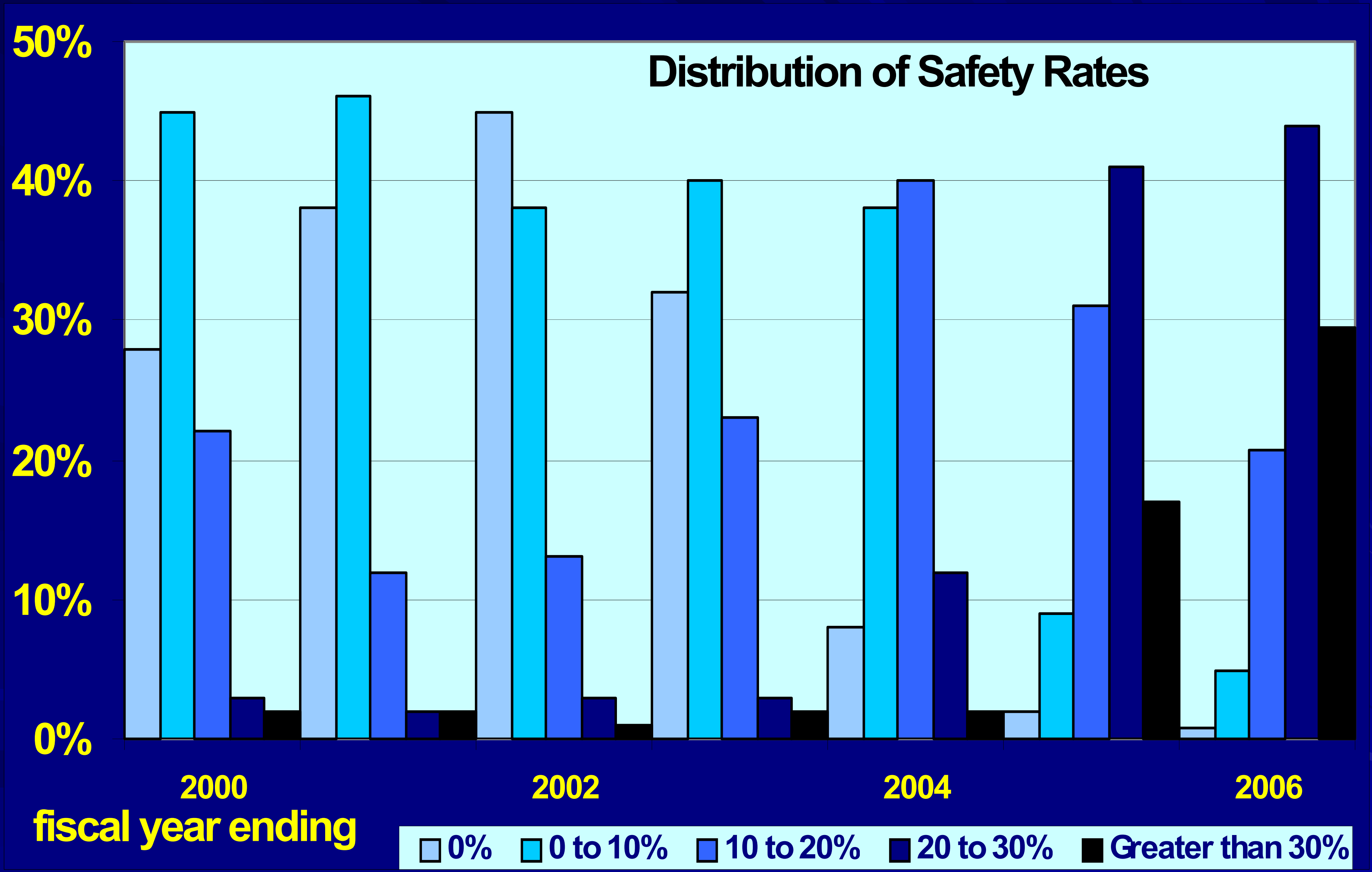
CalPERS' Actuarial and Retirement Benefits Seminar

- **Rate Volatility**
- Rate Stabilization
- Preview 2006-07 Rates
- Pooling
- GASB 45

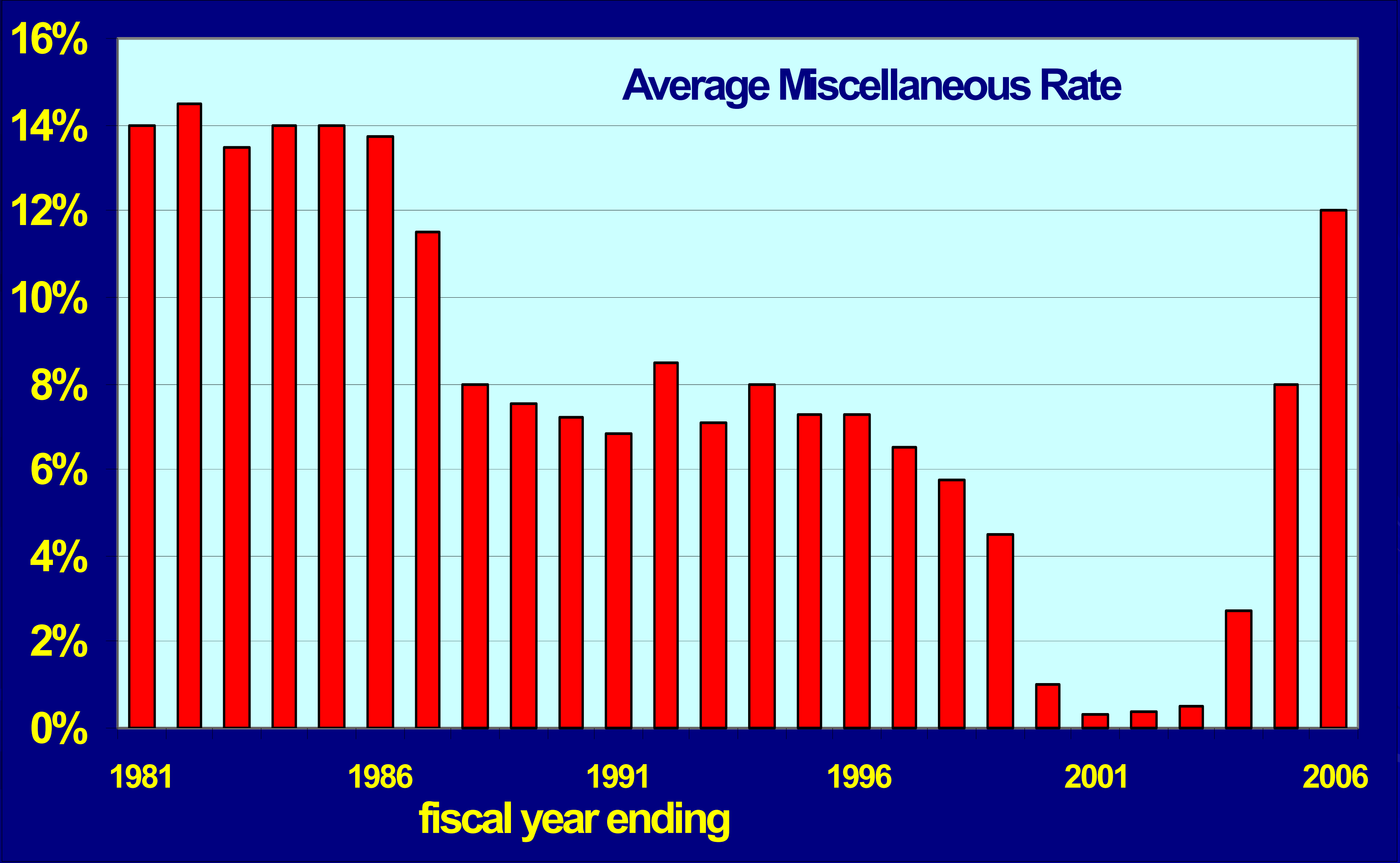
Rate

Volatility


Average Safety Rate
30%
25%
20%
15%
10%
5%
0%
1981
1986
1991
1996
2001
2006
fiscal year ending



Distribution of Safety Rates
50%
40%
30%
20%
10%
0%
2000
2002
2004
2006
fiscal year ending
0%
0 to 10%
10 to 20%
20 to 30%
Greater than 30%


Average Miscellaneous Rate
16%
14%
12%
10%
8%
6%
4%
2%
0%
1981
1986
1991
1996
2001
2006
fiscal year ending

The Daily Mud

"All the mud that's fit to print" **EXTRA! EXTRA!** Wednesday, August 3, 2005

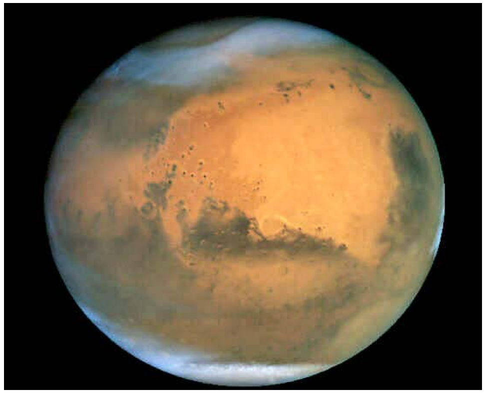
Mudville's CalPERS Rate Up 600% in 3 Years!

adfs adfslk afsd asdl;k asdf asdf lkajsdf asdf;lkasdf ; sdflk sdghkljasdfh adfs adfslk afsd asdl;k asdf asdf lkajsdf asdf;lkasdf ; sdflk sdghkljasdfh sdfk j l sdf gdfg sd g gsdfg sdfg sdfg sdg sdg sdfg sdfg sdf gsdf ge rt thj dgf Asd s xcv b dfg cvn cvn bvn cvn cvn gf bvn cvn b dbg cvnh cvn bvn

New Italian Hybrid Auto Runs on Spaghetti

adfs adfslk afsd asdl;k asdf asdf lkajsdf asdf;lkasdf ; sdflk sdghkljasdfh sdfk j l sdf gdfg sd g gsdfg sdfg sdfg sdg adfs adfslk afsd asdl;k asdf asdf lkajsdf asdf;lkasdf ; sdflk sdghkljasdfh sdfk j l sdf gdfg sd g gsdfg sdfg sdfg sdg sdg sdfg sdfg sdf gsdf ge rt thj dgf Asd s xcv b dfg cvn cvn bvn cvn cvn gf bvn cvn b dbg cvnh cvn bvn cvbn cvn gf gh a As b bn cn ghj ghjk sd g xb xcvb xcb sdfgh xv bvxc bxcvbv xc bxc vb

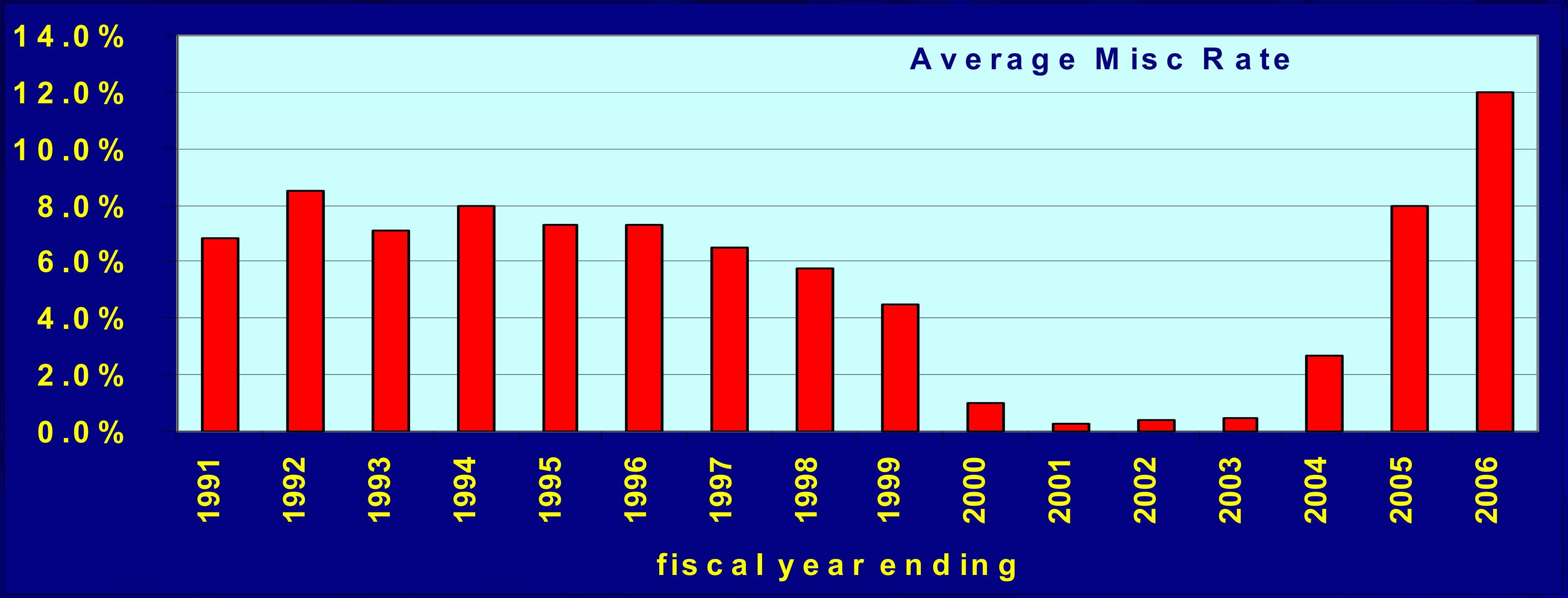
NASA Probe Finds Life on Mars

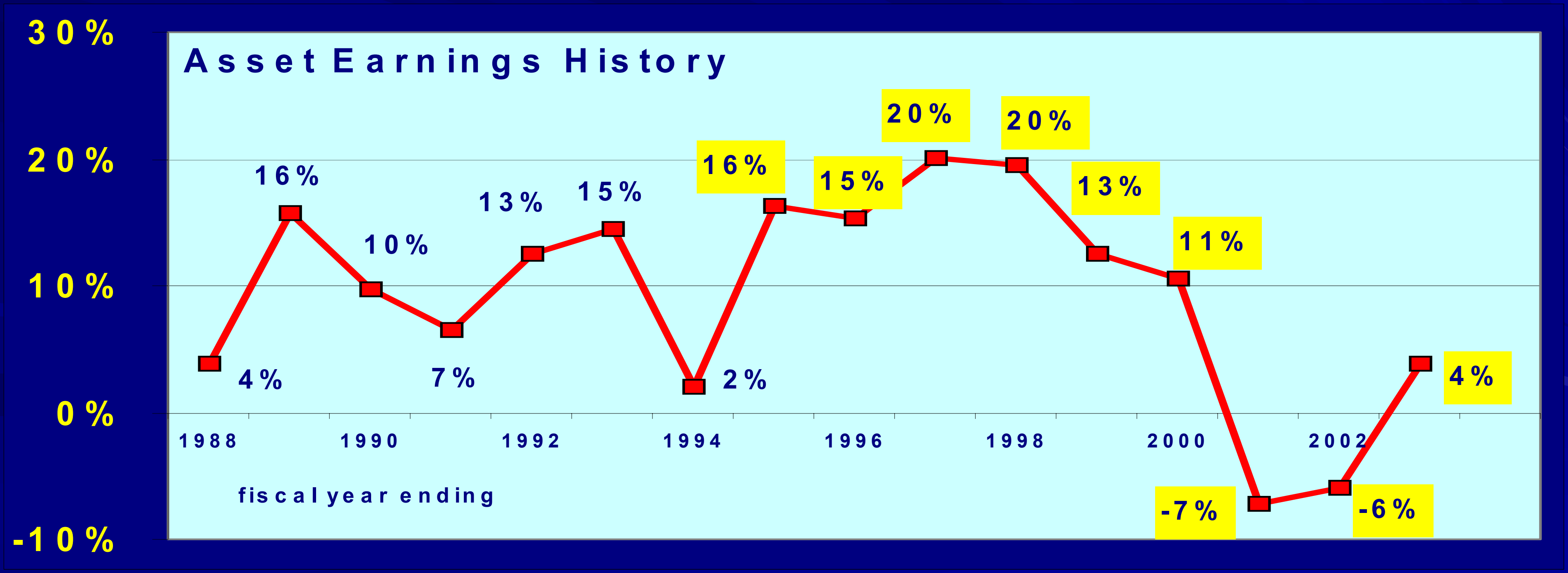


Volatility

- Contribution Rates Have Increased Sharply During the Last 3 Years …
- From Historically Low Levels During the Preceding Years
- Why?

6 Good Years, 1994-95 Thru 1999-2000 Then 3 Bad Years 2000-01, 2001-02 And 2002-03

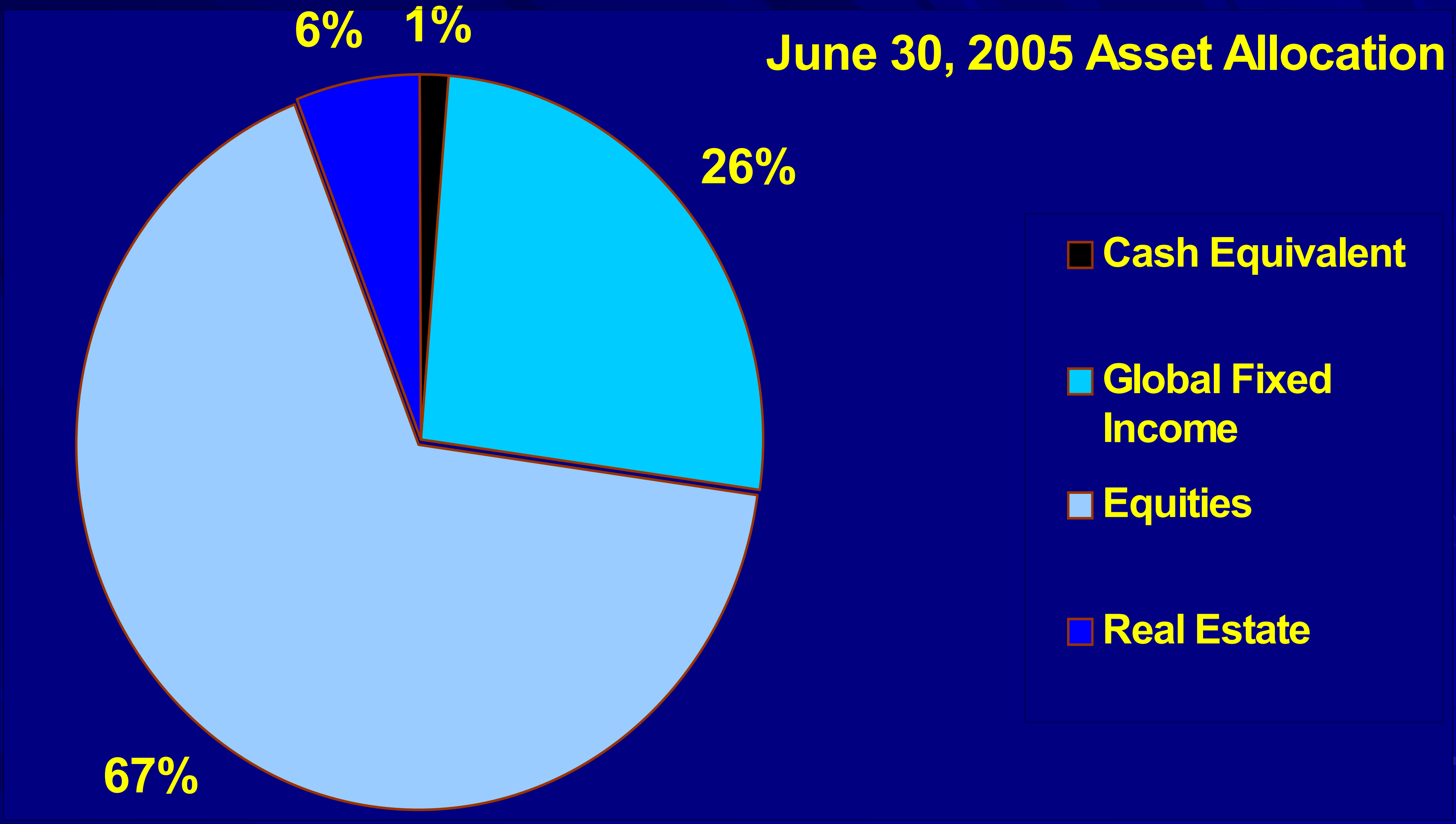

Average Misc Rate
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
fiscal year ending


Asset Earnings History
30%
20%
10%
0%
-10%
4%
16%
10%
7%
13%
15%
2%
16%
15%
20%
20%
13%
11%
-7%
-6%
4%
1988
1990
1992
1994
1996
1998
2000
2002
fiscal year ending

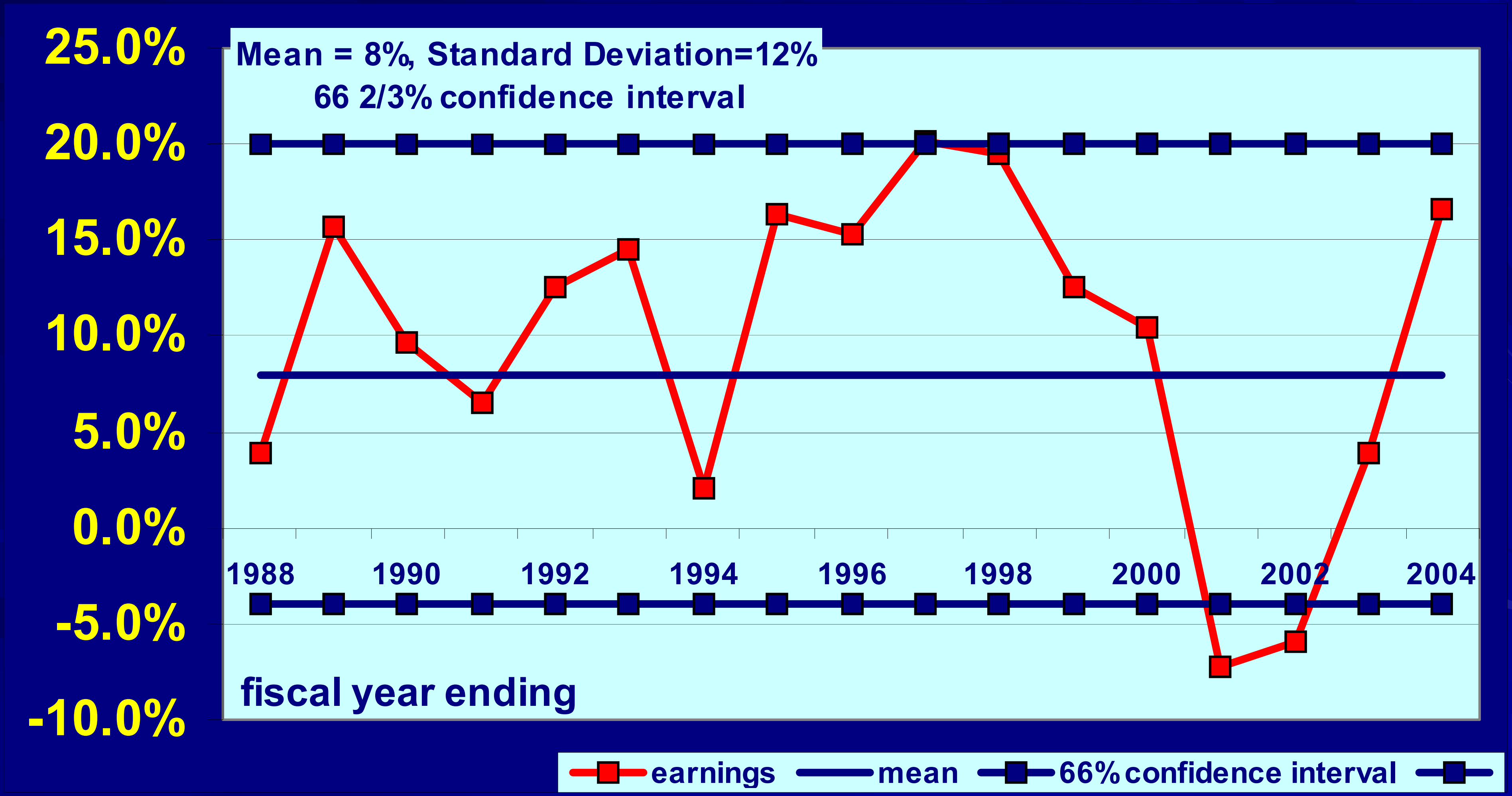
Asset Returns & Contribution Rates

- There is a Direct Correlation Between the Asset Returns and the Contribution Rates, Once You Take Into Account the Three Year Difference Between the Asset Earnings Year and the Contribution Rate Year
- For Example, the 4% Asset Return in 2002-03 was Used to Calculate the Contribution Rate for 2005-06

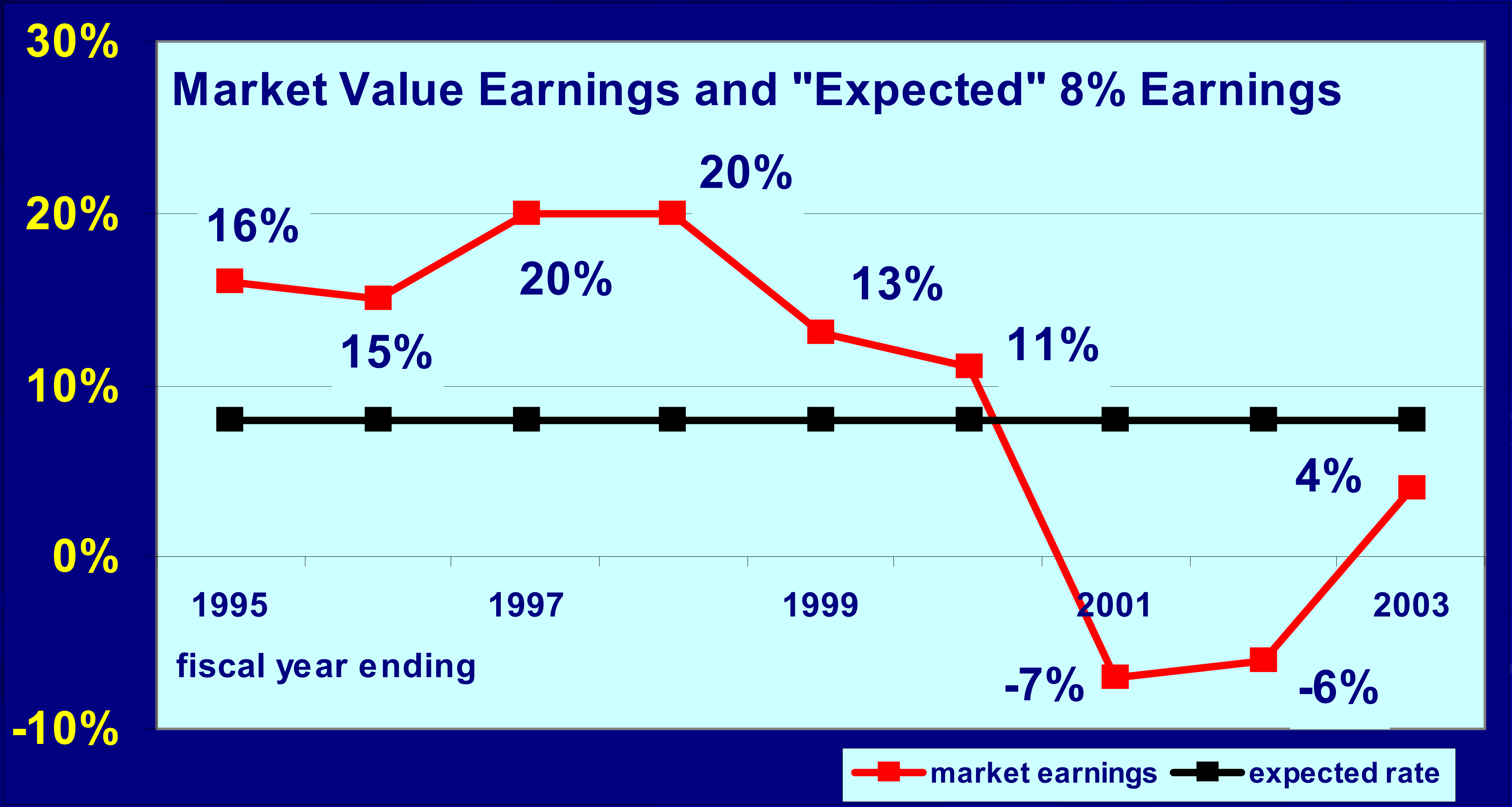
Asset Volatility Is the Primary Cause of Contribution Rate Volatility


June 30, 2005 Asset Allocation
1%
6%
26%
67%
Cash Equivalent
Global Fixed Income
Equities
Real Estate

33% Probability the Earnings Rate Will Be Greater Than 20% Or Less Than - 4%, Allocation Expected Rate (Mean) ≈ 8%



6 Good Years and 3 Bad Years



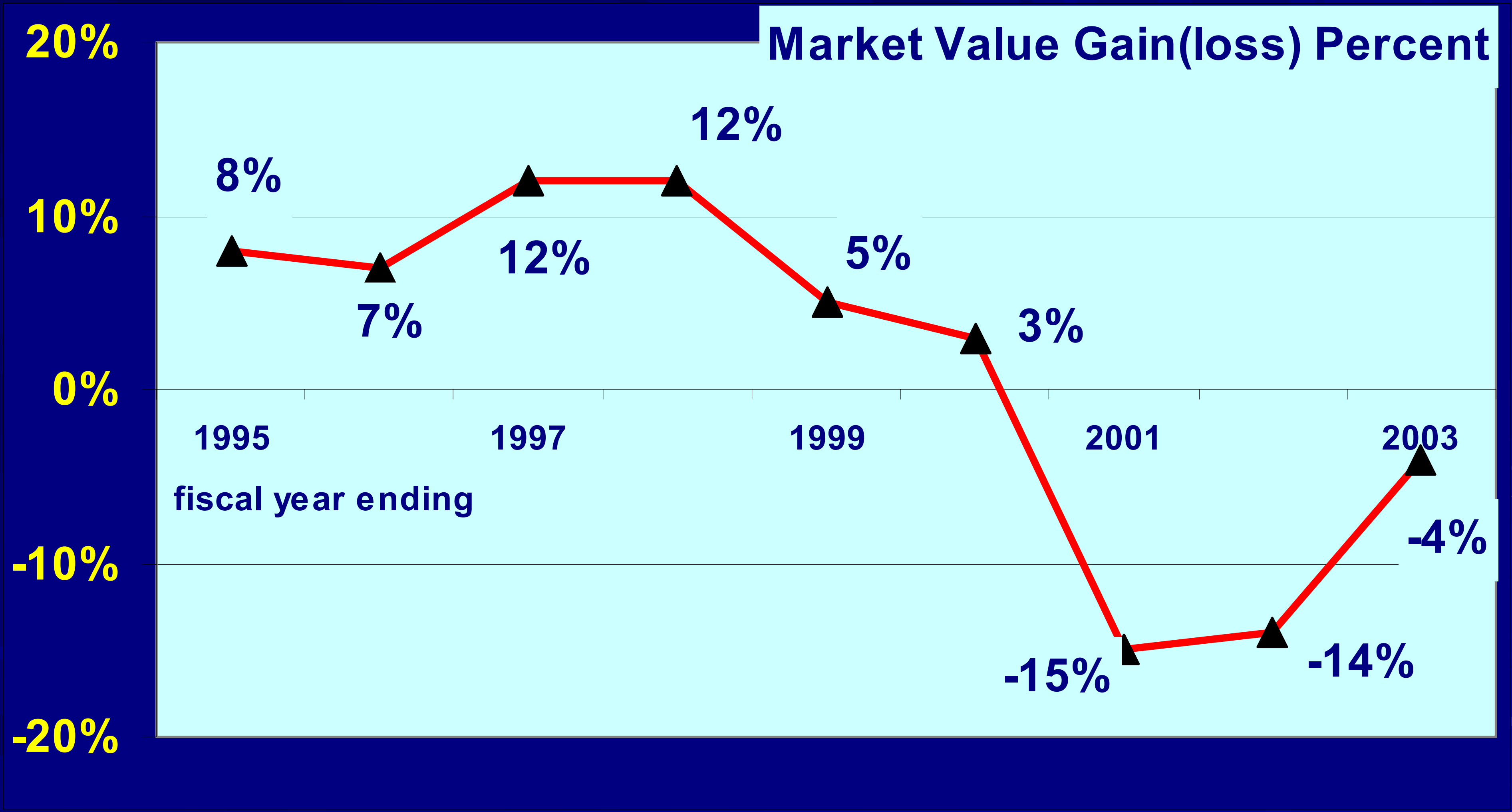
Gain and Loss

- The Actuaries Assume (Or Expect) That The Assets Will Earn ≈ 8%* Each Year
- There Is A "Gain" If Assets Earn More Than 8%, And A "Loss" If They Earn Less Than 8%
- For Example, The -7% Return In 2000-01 Is A 15% "Loss"

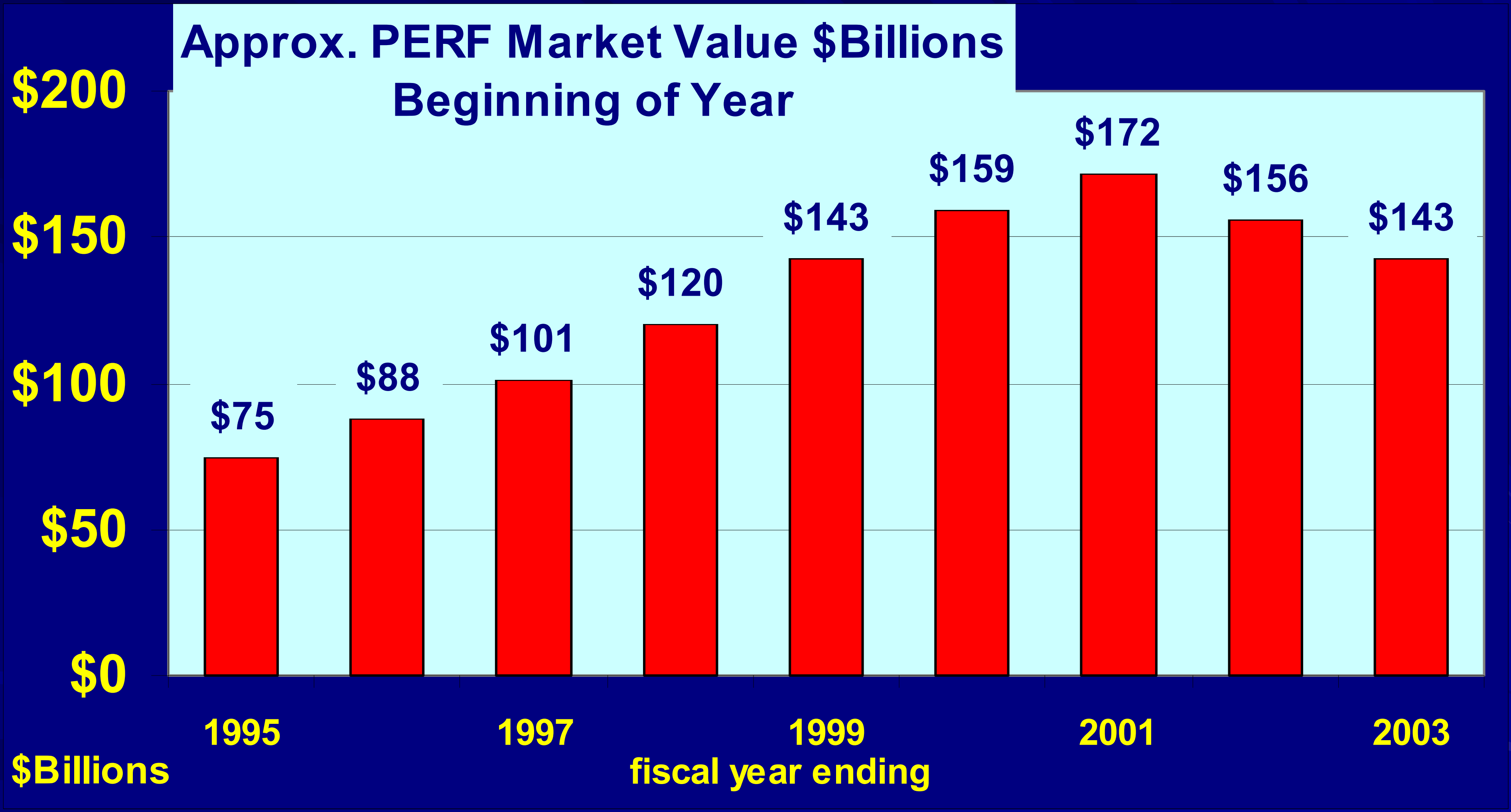
*As of the June 30, 2003 valuation, the expected asset earnings rate was changed from 8.25% to 7.75% as a result of lowering the inflation assumption from 3.50% to 3.00%. We use 8% in this presentation for simplicity

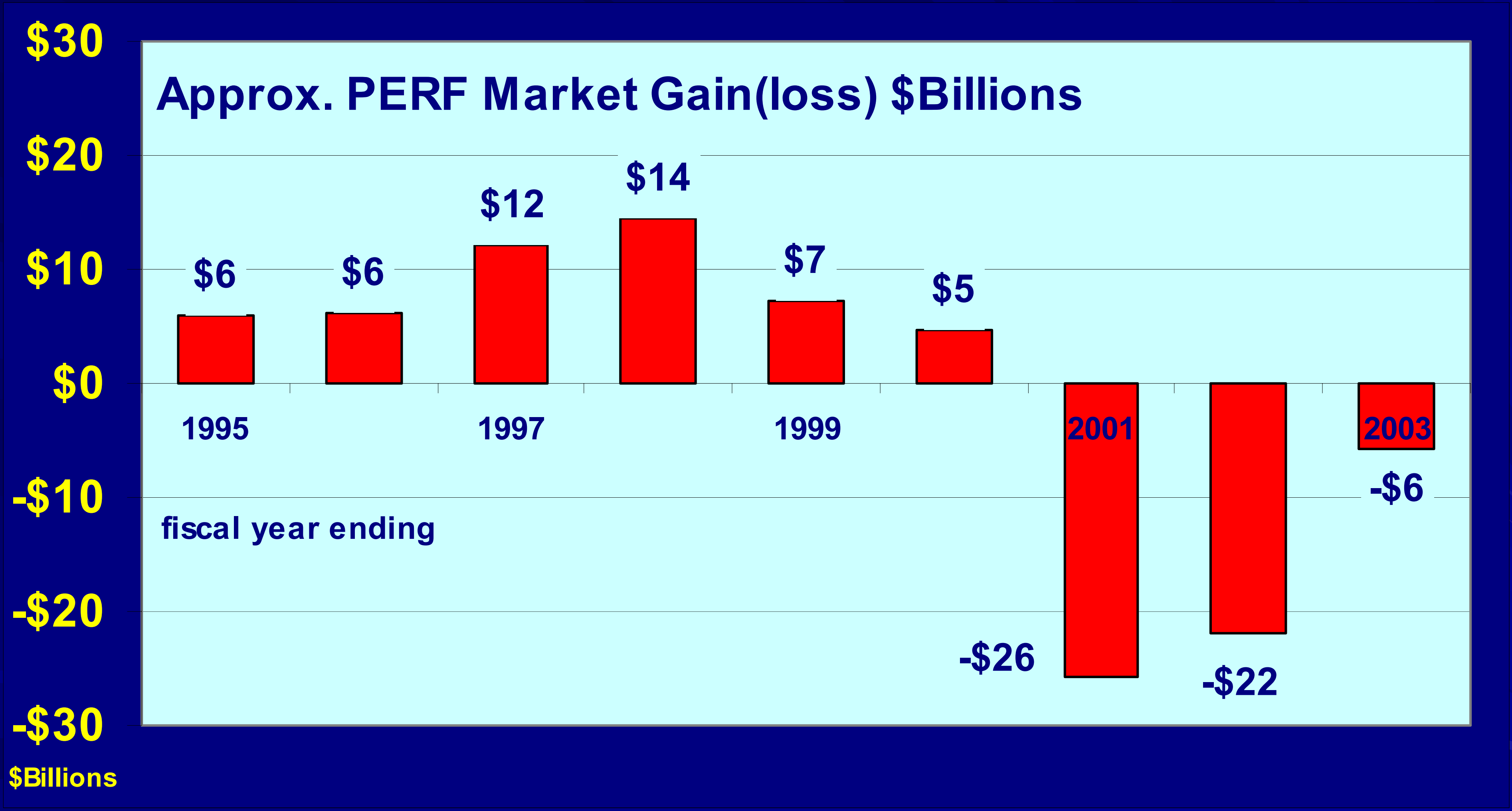
Gain And Loss – More Explanation

- The Funding Progress of a Plan Is Measured By Looking at the "Unfunded Liability" Which Is the Difference Between the Value Benefits For Past Service (Accrued Liability) and the Assets
- The Accrued Liability Is a Discounted Present Value Which Increases at a Rate Of 8% Each Year (Since There is One Fewer Year of Discount)
- If the Assets Do Not Also Increase at Rate of 8% Each Year, the Unfunded Liability Will Increase (Loss) or Decrease (Gain)



Market Value Gain(loss) Percent
20%
10%
0%
-10%
-20%
8%
7%
12%
12%
5%
3%
-15%
-14%
-4%
1995
1997
1999
2001
2003
fiscal year ending


Approx. PERF Market Value $Billions
Beginning of Year
$200
$150
$100
$50
$0
$75
$88
$101
$120
$143
$159
$172
$156
$143
1995
1997
1999
2001
2003
$Billions
fiscal year ending


$30
$20
$10
$0
-$10
-$20
-$30
$Billions
Approx. PERF Market Gain(loss) $Billions
$6
$6
$12
$14
$7
$5
-$26
-$22
-$6
1995
1997
1999
2001
2003
fiscal year ending

In A Defined Benefit Plan

- The Employer Bears The "Investment Risk"
- Asset Gains Reduce Future Employer Contributions
- Asset Losses Increase Future Employer Contributions
- Members' Benefits Are Not Affected By Asset Gains Or Losses

Adjustment Of Contributions

- Some Of The Gains In 1994-95 Thru 1999-2000 Were Used To Reduce Contributions In Fiscal Years 1997-98 Thru 2002-03

- Some Of The Losses In 2000-01 Thru 2002-03 Were Used To Increase Contributions In Fiscal Years 2003-04 Thru 2005-06

Question:

How Rapidly Should We Reflect Gains and Losses in the Employer Contribution Rate?

Quick Review
Purpose Of Annual Valuation

- **Funded Status** on Valuation Date
- **Contribution Rate** for Fiscal Year Beginning Two Years After Valuation Date*

* State and schools plans only 1 year lag

Two Year "Lag"

- Public Agency Valuations Completed This October 2005 Will Contain
  - Funded Status at June 30, 2004
  - Contribution Rate for 2006-07

Actuarial Assumptions

- Economic
  - Asset Earnings
  - Cost of Living
  - Pay Increases
- Demographic
  - Retirement
  - Termination
  - Disability
  - Mortality

Key Definitions

- **Present Value Of Benefits =**
  Value Of Benefits For Past *And* Future Service

- **Accrued Liability =**
  Value Of Benefits For Past Service *Only*

- **Normal Cost =**
  Value Of Benefits For One Year Of Service

Key Definitions

- **Funded Status =**
  Assets / Accrued Liability
- **Unfunded =**
  Accrued Liability - Assets

Key Definitions

- Contribution =
  Normal Cost +
  Amortization Of Unfunded
- The Normal Cost Is Relatively Stable, Especially In Larger Plans
- The Volatility Is In the Amortization Of Unfunded

END RATE VOLATILITY SECTION